

What is claimed is:

1. A system for measuring head fly height in an apparatus with a rotating recording media using thermal load response, comprising:

a head having a thermal source and a thermal detector, wherein the heat source generates a heat flux that is measured at the thermal detector when the media is rotating; and

a sensing arrangement for determining the fly height of the head based on the temperature of the thermal detector.

2. The system of claim 1 wherein the thermal source is a write element.

3. The system of claim 1 wherein the thermal detector is a read element.

4. The system of claim 1 wherein the sensing arrangement includes a constant voltage element for determining the temperature of the thermal detector.

5. The system of claim 1 wherein the sensing arrangement includes a constant current element for determining the temperature of the thermal detector.

6. The system of claim 1 further including a plurality of thermal detectors located on the head.

7. The system of claim 6 wherein each thermal detector has its respective temperature sensed with a dedicated thermal sensor.

10087413.030102

8. A method for determining fly height of a head flying over a rotating media, the head including a thermal detector and a thermal source, the method comprising the steps of:

energizing the thermal source to provide a heat flux;  
measuring the temperature of the thermal detector; and  
calculating the fly height based on the measured temperature.

9. The method of claim 8 wherein said step of energizing the thermal source includes energizing the write element.

10. The method of claim 8 wherein said step of energizing the thermal source includes inducing a transient thermal response in the thermal source.

11. The method of claim 8, wherein the step of measuring further includes measuring the temperature of multiple thermal detectors positioned on the head.

12. The method of claim 8 wherein the step of calculating the fly height includes determining fly height using a look-up table of values.

13. The method of claim 8 where said step of measuring further includes measuring the response of the thermal detector over data while sub-writing currents flow to the writer.

14. A system for measuring a gap in a rotating system, the system comprising:  
a first object having a first surface and a second object having a second surface disposed opposite the first surface; and  
means for measuring the gap between the first and second surfaces.

2010EO 1413-030102

15. The system of claim 14 wherein the means includes means for measuring pitch of the first object relative to the second object.

16. The system of claim 14 wherein the second object is a compact disc or a digital versatile disc and the first object is a read head.

17. The system of claim 14 wherein the means includes a thermal source and a thermal detector.

18. The system of claim 14 wherein the means includes a plurality of thermal detectors on the second object.

19. The system of claim 18 wherein each thermal detector has a dedicated thermal source.

20. The system of claim 18 wherein the plurality of thermal detectors is arranged in a row parallel to the direction of travel of the first object relative to the second object.

2010030102 10087413-030102